

CLAIMS

Having thus described our invention, what we claim as new, and desire to secure the letters Patent is:

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1. A display device comprising a structured solid state selectively reflective layer formed inside a display cell, wherein said structured solid state selectively reflective layer transmits light that is not scattered by the display device and reflects a portion of light that is scattered in a forward direction by the display device back towards a viewer.
2. The display device of Claim 1 wherein the display device contains liquid crystals.
3. The display device of Claim 2 wherein the liquid crystals are polymer stabilized cholesteric liquid crystals.
4. The display device of Claim 2 wherein the liquid crystals are polymer dispersed liquid crystals.
5. The display device of Claim 2 wherein the liquid crystals are surface stabilized cholesteric liquid crystals.

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- 1 6. The display device of Claim 2 wherein the liquid  
2 crystals can be switched by means of an electric  
3 field from a transparent to a scattering state.
  - 1 7. The display device of Claim 2 wherein the liquid  
2 crystals can be switched by thermal means from a  
3 transparent to a scattering state.
  - 1 8. The display device of Claim 1 wherein the  
2 selectively reflective layer has a thickness of a  
3 least about 1  $\mu\text{m}$ .
  - 1 9. The display device of Claim 1 wherein the  
2 selectively reflective layer is a high or low  
3 refractive index material.
  - 1 10. The display device of Claim 9 wherein the high  
2 refractive index material is a mixed oxide amorphous  
3 material.
  - 1 11. The display device of Claim 9 wherein the low  
2 refractive index material is a fluorinated polymeric  
3 material.
  - 1 12. The display device of Claim 1 wherein the  
2 selectively reflective layer is formed as a series  
3 of ridges substantially triangular in cross-section.

1 13. The display device of Claim 1 wherein the  
2 selectively reflective layer is formed as a close  
3 packed rectilinear array of square pyramids.

1 14. The display device of Claim 1 wherein a transparent  
2 electrode layer is formed on top of the selectively  
3 reflective layer.

1 15. The display device of Claim 1 wherein a transparent  
2 electrode layer is formed between the selectively  
3 reflective layer and a light absorbing layer.

1 16. The display device of Claim 1 wherein the  
2 selectively reflective layer is designed to become  
3 reflective at angles less than a predetermined  
4 critical angle for propagation of light  
5 therethrough.

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